Journal of BIOENERGETICS AND BIOMEMBRANES

Volume 23, Number 1, February 1991

Contents

MINI-REVIEW SERIES: TRANSMEMBRANE SIGNALING—THE PAST DECADE

SERIES EDITOR: JOHN A. BADWEY

Transmembrane Signaling, Then and Now: The Decade of the Eighties. *John A. Badwey* 1

Second Messengers Derived from Inositol Lipids. *Kevin J. Catt, László Hunyady, and Tamás Balla* 7

The Role of Glycosyl-Phosphoinositides in Hormone Action. *Alan R. Saltiel* 29

Activation and Regulation of Protein Kinase C Enzymes. *Gary L. Nelsestuen and Mohammad D. Bazzi* 43

Structure and Function of Tyrosine Kinase Receptors. *Morris F. White* 63

Cell Regulation by Sphingosine and More Complex Sphingolipids. *Alfred H. Merrill, Jr* 83

Lipoxins: Eicosanoids Carrying Intra- and Intercellular Messages. *Charles N. Serhan* 105

Role of Biological Membranes in Slow-Wave Sleep. *Manfred L. Karnovsky* 123

Membrane Phospholipids and the Dark Side of Vision. *Robert R. Rando* 133

RESEARCH ARTICLE

Cl^-, Na^+, and H^+ Fluxes during the Acidification of Rabbit Reticulocyte Endocytic Vesciles. *Victoria Gaete, Marco Tulio Núñez, and Jonathan Glass* 147

Journal of BIOENERGETICS AND BIOMEMBRANES

Volume 23, Number 2, April 1991

Contents

MINI-REVIEW SERIES: *Paracoccus denitrificans*

SERIES EDITOR: ANGELO AZZI

Metabolic Regulation Including Anaerobic Metabolism in *Paracoccus denitrificans*. *A. H. Stouthamer* 163

C_1 Metabolism in *Paracoccus denitrificans*: Genetics of *Paracoccus denitrificans*. *N. Harms and R. J. M. van Spanning* 187

Bacterial NADH-Quinone Oxidoreductases. *Takao Yagi* 211

The Cytochrome *c* Reductase/Oxidase Respiratory Pathway of *Paracoccus denitrificans*: Genetic and Functional Studies. *Peter Steinrücke, Ernst Gerhus, Martin Jetzek, Andreas Turba, and Bernd Ludwig* 227

The Three-Subunit Cytochrome bc_1 Complex of *Paracoccus denitrificans*. Its Physiological Function, Structure, and Mechanism of Electron Transfer and Energy Transduction. *Bernard L. Trumpower* 241

Genes Coding for Cytochrome *c* Oxidase in *Paracoccus denitrificans*. *John van der Oost, Tuomas Haltia, Mirja Raitio, and Matti Saraste* 257

Cytochrome *c* Oxidase in *Paracoccus denitrificans*. Protein, Chemical, Structural, and Evolutionary Aspects. *Gerhard Buse and Guy C. M. Steffens* 269

Cytochrome *c* Oxidase Metal Centers: Location and Function. *Michele Müller and Angelo Azzi* 291

The Reactions of the Oxidase and Reductases of *Paracoccus denitrificans* with Cytochromes *c*. *Lucile Smith and Helen C. Davies* 303

Evolutionary Aspects of Cytochrome *c* Oxidase. *B. Kadenbach, A. Stroh, F.-J. Hüther, A. Reimann, and D. Steverding* 321

RESEARCH ARTICLES

Inhibition of Membrane-Bound Succinate Dehydrogenase by Disulfiram. *David Jay* . . 335

Structural and Functional Aspects of the Respiratory Chain of Synaptic and Nonsynaptic Mitochrondria Derived from Selected Brain Regions. *Maurizio Battino, Enrico Bertoli, Gabriella Formiggini, Simonetta Sassi, Antonella Gorini, Roberto F. Villa, and Giorgio Lenaz* 345

Functional Characterization of the Lesion in the Ubiquinol: Cytochrome *c* Oxidoreductase Complex Isolated from the Nonphotosynthetic Strain R126 of *Rhodobacter capsulatus*. *Javier G. Fernández-Velasco, Silvia Cocchi, Mauro Neri, Günter Hauska, and B. Andrea Melandri* 365

Study of the Interaction of Cadmium with Membrane-Bound Succinate Dehydrogenase. *David Jay, Rafael Zamorano, Eduardo Muñoz, Roberto Gleason, and José Luis Boldu* 381

Journal of BIOENERGETICS AND BIOMEMBRANES

Volume 23, Number 3, June 1991

Contents

MINI-REVIEW SERIES: OXIDOREDUCTASES IN PLANT PLASMA MEMBRANE

SERIES EDITOR: FREDERICK L. CRANE

The Role of Plasma Membrane Redox Activity in Light Effects in Plants. *Bernard Rubinstein and Arthur I. Stern* 393

Generation of Superoxide Anion and Hydrogen Peroxide at the Surface of Plant Cells. *Angelo Vianello and Francesco Macrì* . . 409

Transplasma Membrane Electron Transport in Plants. *Prakash C. Misra* 425

The Possible Role of Redox-Associated Protons in Growth of Plant Cells. *Rita Barr* 443

NADH Oxidase of Plasma Membranes. *D. James Morré and Andrew O. Brightman* 469

Journal of BIOENERGETICS AND BIOMEMBRANES

Volume 23, Number 4, August 1991

Contents

MINI-REVIEW SERIES: METABOLIC CONTROL OF K^+-CHANNELS

SERIES EDITOR: RAMON LATORRE

Metabolic Control of K^+ Channels: An Overview. *Ramon Latorre* 493

Control of K^+ Channels by G Proteins. *Arthur M. Brown, Atsuko Yatani, Glenn Kirsch, Kouji Okabe, Antonius M. J. VanDongen, and Lutz Birnbaumer* 499

ATP-Dependent Potassium Channels of Muscle Cells: Their Properties, Regulation, and Possible Functions. *N. W. Davies, N. B. Standen, and P. R. Stanfield* 509

Calcium-Activated Potassium Channels: Regulation by Calcium. *Owen B. McManus* 537

Calcium-Activated K^+ Channels: Metabolic Regulation. *L. Toro and E. Stefani* 561

Four Cases of Direct Ion Channel Gating by Cyclic Nucleotides. *Ramon Latorre, Juan Bacigalupo, Ricardo Delgado, and Pedro Labarca* 577

Phosphorylation of K^+ Channels in the Squid Giant Axon. A Mechanistic Analysis. *Eduardo Perozo and Franisco Bezanilla* 599

Use of Toxins to Study Potassium Channels. *Maria L. Garcia, Antonio Galvez, Margarita Garcia-Calvo, V. Frank King, Jesus Vazquez, and Gregory J. Kaczorowski* 615

Using Mutagenesis to Study Potassium Channel Mechanisms. *Roderick MacKinnon* 647

RESEARCH ARTICLES

Time and Concentration Dependence of the Dicyclohexylcarbodiimide, Inhibition of Proton Movements in the Cytochrome bc_1 Complex from Yeast Mitochondria Reconstituted into Proteoliposomes. *Diana S. Beattie and Remedios M. Marcelo-Baciu* 665

Phenylarsine Oxide Induces the Cyclosporin A-Sensitive Membrane Permeability Transition in Rat Liver Mitochondria. *Ewa Lenartowicz, Paolo Bernardi, and Giovanni Felice Azzone* 679

L-Glutamine Transport in Native Vesicles Isolated from Ehrlich Ascites Tumor Cell Membranes. *Miguel A. Medina, Ana R. Quesada, and Ignacio Núñez de Castro* 689

Journal of BIOENERGETICS AND BIOMEMBRANES

Volume 23, Number 5, October 1991

Contents

MINI-REVIEW SERIES: MECHANISMS OF REDOX-LINKED PROTON TRANSLOCATION 699

SERIES EDITOR: J. M. WRIGGLESWORTH

Mechanisms of Redox-Linked Proton Translocations: An Introduction. *John M. Wrigglesworth* 701

Redox-Linked Proton Translocation by Direct-Coupled Ligand-Conduction. *Ian C. West* 703

The Proton-Translocating Nicotinamide Adenine Dinucleotide Transhydrogenase. *J. B. Jackson* 715

Redox-Linked Proton Translocation by NADH-Ubiquinone Reductase (Complex I). *Hans Weiss and Thorsten Friedrich* 743

Cytochrome Oxidase as a Proton Pump. *M. T. Wilson and D. Bickar* 755

Electron and Proton Transport Across the Plasma Membrane. *Frederick L. Crane, Iris L. Sun, Rita Barr, and Hans Löw* 773

RESEARCH ARTICLE

Can Ferricyanide Oxidize Carbon Monoxide-Liganded Cytrochrome a_3? *Richard W. Hendler* 805

ERRATUM. *D. James Morré and Andrew O. Brightman* 819

Journal of BIOENERGETICS AND BIOMEMBRANES

Volume 23, Number 6, December 1991

Contents

MINI-REVIEW SERIES: REGULATION OF MITOCHONDRIAL METABOLISM IN CELLS AND TISSUES

SERIES ORGANIZERS: RAO SANADI AND RICHARD G. HANSFORD

Dehydrogenase Activation by Ca^{2+} in Cells and Tissues. *Richard G. Hansford* 823

Measurement of Oxygen Concentrations in the Intact Beating Heart Using Electron Paramagnetic Resonance Spectroscopy: A Technique for Measuring Oxygen Concentrations *In Situ*. *Jay Zweier, Susan Thompson-Gorman, and Periannan Kuppusamy* 855

Regulation of the Mitochondrial ATPase *In Situ* in Cardiac Muscle: Role of the Inhibitor Subunit. *William Rouslin* 873

RESEARCH ARTICLES

Calcium Transport Sensitive to Ruthenium Red in Cytochrome Oxidase Vesicles Reconstituted with Mitochondrial Proteins. *Cecilia Zazueta, José A. Holguín and Jorge Ramírez*. 889

Modification of Transplasma Membrane Oxidoreduction by SV40 Transformation of 3T3 Cells. *Hans Löw, Frederick L. Crane, Carin Grebing, Monica Isaksson, Annika Lindgren, and Iris L. Sun* . . . 903

Steroid Hormone Specifically Binds to Rat Kidney Plasma Membrane. *Iñaki Ibarrola, Kepa Ogiza, Aida Marino, José M. Macarulla, and Miguel Trueba* 919